

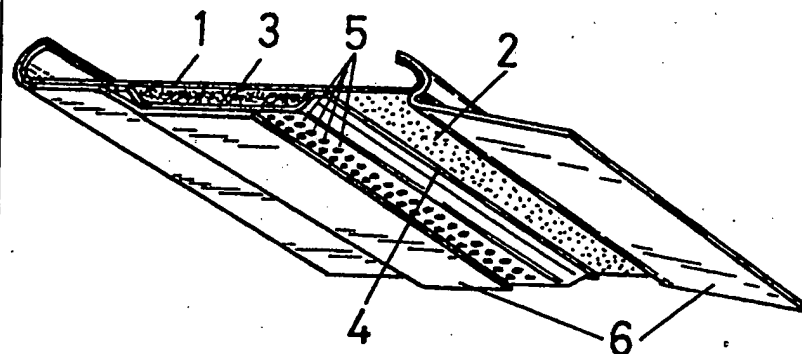
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(54) Wound dressing or adhesive plaster containing P.T.F.E.

(57) A wound dressing material or adhesive plaster includes a carrier (1) and a wound protecting layer (4) that does not stick to the wound, consisting essentially of polytetrafluor ethylene (PTFE) a backing of a layer of absorbent material (3), if desired.

Fig.1



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Fig. 1

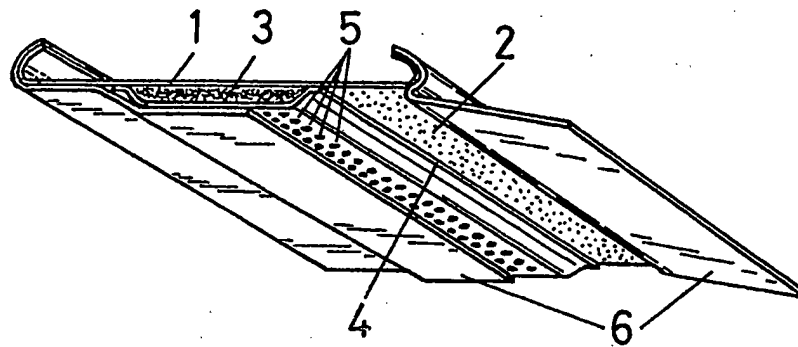
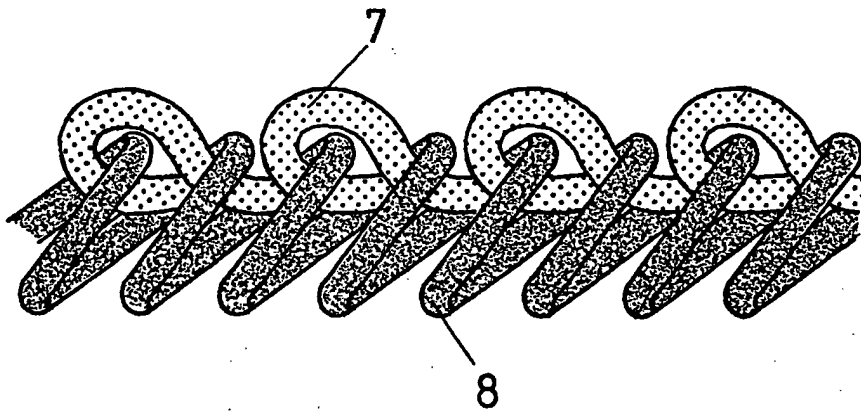


Fig. 2



## SPECIFICATION

## Improvements in or relating to a wound dressing material or an adhesive plaster

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The invention relates to a wound dressing material or an adhesive plaster including a wound protecting layer that does not stick together with the wound.

It is known to use for wound dressings that are not to stick together with the wound woven or knitted fabrics of cotton which, being provided with various additives, exhibit a certain reduced readiness to sticking.

In Austrian patent No. 271,733 there is described a wound dressing with a perforated polymer layer that detaches from the wound, which dressing is not absorbing relative to wound liquids and is comprised of a thermoplastic film or a compressed non-woven fabric of thermoplastic fibres melted together. In addition to polypropylene, also nylon and polyethylene are mentioned as suitable thermoplastic polymers.

Also aluminium-coated dressings have already been proposed, with aluminium used as a perforated foil or vapour-deposited thereon. Such a dressing material with a thin vapour-deposited metal coating is known from Austrian patent No. 290,019.

A prerequisite for the manufacture of vapour-deposited wound dressings is the availability of a suitable high-vacuum plant, other non-adhering wound dressings have a complex layer structure, thus also being expensive to produce. Moreover, the known dressing materials do not yet exhibit in a completely satisfactory manner the properties desired, i.e. a high absorptive capacity for wound secretions with a minimal tendency to sticking together with the wound scab at the same time.

The invention has as its object to prevent the inconveniences described and to provide a dressing material that exhibits excellent wound-healing promoting properties and for the manufacture of which devices common to the textile industry may be used.

The invention departs from the fact that polytetrafluoroethylene (PTFE) has already gained access to many fields of application, due to its extremely poor wettability and its anti-adhesive properties. Also has the physiological harmlessness of this material been proved; thus, elements of PTFE have already been used as bone substituents or for joints.

With a dressing material of the initially defined kind the invention consists in that the wound protecting layer consists essentially of polytetrafluoroethylene (PTFE).

The wound protecting layer suitably is backed by a layer of absorbent material.

Absorbent materials are e.g. highly absorptive fibrous layers or non-woven fabrics of cotton, rayon, cellulose and cellulose derivatives.

According to one embodiment of the invention the wound protecting layer or layer of absorbent material, with adhesive plasters, is fastened to a self-adhering, flexible, if desired perforated, carrier.

The self-adhering carrier is only partially covered by the wound layer, the parts of the carrier that

project beyond the wound layer are covered by an easily removable flat material until use of the dressing. The carrier may be composed of threads or fibres or may be comprised of a surgical foil of synthetic material, advantageously perforated or microporous, whose one side is provided with an adhesive layer.

The wound protecting layer advantageously is comprised of woven or knitted PTFE threads.

The wound under such a layer can dry well without sticking together therewith; if the secretion from the wound is particularly intensive, it is advantageous to use a dressing material including an additional layer of absorbent material.

Threads of PTFE may be produced in a known manner by spinning viscose in which PTFE particles have been suspended. After spinning the cellulose matrix is thermally decomposed, the PTFE particles thus sintering together. The threads thus obtained, which are coloured in dark-brown on account of the carbon-containing residues, are drawable and may be bleached. Another method of producing PTFE threads is known from Austrian patent No. 340,561.

According to another advantageous modification the wound protecting layer is composed of textile threads or yarns that are woven or knitted together with PTFE threads, the side of the layer that faces the wound being formed primarily of PTFE threads.

For manufacturing such a dressing, a PTFE thread is worked in as a contacting layer during weaving or knitting in such a manner that it comes to lie primarily on the surface of one side. This side then forms the contacting layer to the wound. The mixed woven or knitted fabric in this case has a certain absorptive capacity of its own.

According to a further preferred embodiment the wound protecting layer is comprised of a woven or knitted material covered with PTFE, preferably of cotton threads or yarns. To this end, a woven fabric or knitted material, for instance of cotton, is guided through an immersion bath containing an aqueous PTFE dispersion, then separated by pressing, and dried. The PTFE particles are held fast to the textile material. Subsequently, the treated material is allowed to run through a pressing roll, if desired at an increased temperature, whereby the adhering capacity of the PTFE on the woven or knitted fabric is even further increased. If a PTFE dispersion containing emulsifiers has been used, the latter have to be washed out in a further working step.

According to another embodiment the wound protecting layer is comprised of woven or knitted threads or yarns, preferably such of cotton, which are covered with PTFE. In this case, the threads or yarns are covered or impregnated with PTFE in the same manner as described above in connection with woven or knitted materials.

A dressing material whose wound protecting layers is comprised of textile threads or yarns that are woven or knitted together with threads or yarns covered with PTFE, with the side of the layer that faces the wound being formed primarily of PTFE-covered threads or yarns, is particularly preferred.

Finally, according to one embodiment of the invention, the wound protecting layer is comprised

of an open or perforated PTFE foil.

Foils of PTFE are usually produced by paste extrusion or by peeling off cylindrical PTFE sinter blocks. The PTFE foil, if desired, is connected with a layer of absorbent material and/or with a carrier of the type defined farther above, e.g. by sewing on. The foil may be perforated prior or after its application on the further components of the dressing material according to the invention, in order to ensure the free access of air to the wound.

The invention will now be explained in more detail with reference to the accompanying drawing, wherein:

Figure 1 is a possible realization of the dressing material according to the invention as an adhesive plaster; and

Figure 2 illustrates in a strongly enlarged manner a section from a knitted or Raschel strip which is composed of two different threads or yarns.

According to Figure 1, a flexible carrier 1 on one side is provided with an adhesive layer 2, which is partially covered by a layer of absorbent material 3. Above the layer 3 a wound protecting layer 4 is provided, which, in the embodiment illustrated, is fastened to the carrier along its edge zones by means of the adhesive layer. In Figure 1, for instance, a PTFE foil provided with perforations 5 is shown as the wound protecting layer. The sections of the self-adhering flexible carrier 1 that project beyond the combined wound pad comprised of a wound protecting layer backed by an absorbent material are covered by two easily removable flat-material pieces 6 overlapping in the region of the wound pad till the utilization of the adhesive plaster. One of the two straps 6 is illustrated in Figure 1 in a partly removed manner, the adhering layer 2 lying therebelow thus being visible.

From Figure 2 it can easily be seen how, with a mixed knitted material, the one side of the wound layer, which is designed as a knitted strip, is formed primarily of threads or yarns of one kind, i.e. consisting of PTFE or PTFE-covered ones 7, while, on the other side mainly threads or yarns having wound-secretion absorbing properties 8 come to lie.

An advantage of the type of knitting illustrated is to be seen also in the fact that a knitted strip thus produced, to a relatively major extent consists of absorbent material, which, however, cannot enter into direct contact with a wound.

With all the possible embodiments of the dressing material according to the invention, known healing-promoting and antiseptic or bactericidal substances may be incorporated in the wound protecting layer, in the layer of absorbent material, or in both of them.

## CLAIMS

1. In a wound dressing material or adhesive plaster including a wound protecting layer that does not stick together with the wound, the improvement which is characterised in that the wound protecting layer consists essentially of polytetrafluoroethylene (PTFE).

2. A wound dressing material as set forth in claim 1, wherein the wound protecting layer is

backed by a layer of absorbent material.

3. A wound dressing material as set forth in any one of claims 1 or 2, wherein the wound protecting layer and the layer of absorbent material are fastened to a self-adhering, flexible, if desired perforated, carrier.

4. A wound dressing material as set forth in claims 1 to 3, wherein the wound protecting layer consists of woven or knitted PTFE threads.

5. A wound dressing material as set forth in claims 1 to 3, wherein the wound protecting layer is composed of textile threads or yarns commonly woven or knitted together with PTFE threads, the side of the layer that faces the wound being primarily formed of PTFE threads.

6. A wound dressing material as set forth in claims 1 to 3, wherein the wound protecting layer consists of PTFE-covered woven or knitted material, preferably of cotton threads or yarns.

7. A wound dressing material as set forth in claims 1 to 3, wherein the wound protecting layer consists of an open or perforated PTFE foil.

8. A wound dressing material substantially as hereinbefore described with reference to the accompanying drawing.

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